

Abstract

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Antioxidant nutrient intakes and corresponding biomarkers associated with the risk of atopic dermatitis in young children.

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BACKGROUND AND OBJECTIVES: To investigate the association of antioxidant nutritional status with the risk of atopic dermatitis (AD) in young children in a case-control, population-based study.

SUBJECTS AND METHODS: Identified from preschools by using the Korean version of the International Study of Asthma and Allergies in Childhood (ISAAC). Final analysis included 180 AD (mean age 5.3+/-0.9 years) and 242 non-AD (mean age 5.2+/-1.0 years) children. Diet was assessed using a validated semi-quantitative food frequency questionnaire. Fasting blood samples were used for analyses of fat-soluble vitamins (retinol, alpha-tocopherol, and beta-carotene) and vitamin C.

RESULTS: AD was associated negatively with intakes of antioxidant-related nutrients. The adjusted odds ratio (OR) and 95% confidence interval (95% CI) were 0.44 (0.22-0.88) for the highest (vs lowest) quintile of beta-carotene. A similar association was observed for dietary vitamin E (OR=0.33, 95% CI=0.16-0.67), folic acid (OR=0.37, 95% CI=0.18-0.73), and iron (OR=0.39, 95% CI=0.19-0.79). Reduced AD risk was found with 1 s.d. increase of serum alpha-tocopherol [OR=0.64, 95% CI=0.41-0.98) and retinol (OR=0.74, 95% CI=0.58-0.96) concentrations, and marginally with that of serum beta-carotene levels (P=0.0749 for trend). There was no relationship of AD risk with dietary and plasma vitamin C as well as nutrient supplement intake regardless of nutrient type. AD was predicted better by the intake measure than the corresponding blood biomarker regarding vitamin E and beta-carotene.

CONCLUSIONS: These findings suggest that higher antioxidant nutritional status reduces the risk of AD and that such risk-reduction effects depend on nutrient type.

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